

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1. (Currently Amended) An applicator for applying functional substances into human skin, comprising:

- (a) a base,
- (b) a plurality of microneedles fixed to said base and projecting therefrom a distance sufficient to penetrate into the skin, said microneedles being made of a material that is substantially sugars that dissolve within the human body and capable of disintegration and dispersion into the skin, and
- (c) a functional substance carried by said microneedles for delivery by said microneedles into the skin.

Claim 2. (Original) An applicator according to claim 1 and characterized further in that said functional substance is distributed in the material of said microneedles.

Claim 3. (Original) An applicator according to claim 2 and characterized further in that said functional substance is distributed homogeneously throughout said microneedles.

Claim 4. (Original) An applicator according to claim 1 and characterized further in that said functional substance is encapsulated in said microneedles.

Claim 5. (Original) An applicator according to claim 1 and characterized further in that said base and said microneedles are integrally molded from the same material.

Claim 6. (Original) An applicator according to claim 5 and characterized further in that said functional substance is distributed homogeneously throughout said base and microneedles.

Claim 7. (Original) An applicator according to claim 1 and characterized further in that said microneedles are generally cone shaped.

Claim 8. (Original) An applicator according to claim 1 and characterized further in that said microneedles are square in cross-section.

Claim 9. (Original) An applicator according to claim 1 and characterized further in that said microneedles are polygonal in cross-section.

Claim 10. (Original) An applicator according to claim 1 and characterized further in that said microneedles are at least partially elliptical in cross-section.

Claim 11. (Cancelled)

Claim 12. (Original) An applicator according to claim 1 and characterized further in that said microneedles are constricted intermediate their ends to facilitate breaking off the portions of the needles beyond the narrow portions to leave those portions in the skin.

Claim 13. (Original) An applicator according to claim 1 and characterized further in that said microneedles have relatively thin outer portions and relatively thick inner portions adjacent said base with a step between said portions to facilitate separation of said outer portions from said inner portions with the outer portions remaining in the skin.

Claim 14. (Original) An applicator according to claim 1 and characterized further in that said microneedles have tips that are knife-shaped to facilitate insertion into the skin.

Claim 15. (Original) An applicator according to claim 1 and characterized further by microcontainers containing said functional substance, said microcontainers being contained within said microneedles for delivery into the skin.

Claim 16. (Original) An applicator according to claim 15 and characterized further in that said microneedles are formed with barbed tips and said microcontainers are disposed in

said barbed tips for separation with the barbed tips from the remainder of the microneedles for retention in the skin upon removal of the base.

Claim 17. (Original) An applicator according to claim 1 and characterized further in that said microneedles have capillary recesses in outer portions thereof for retaining said functional substances for delivery into the skin.

Claim 18. (Original) An applicator according to claim 17 and characterized further in that said capillary recesses extend along a central axis of said microneedles and are open at the outer ends of said microneedles.

Claim 19. (Original) An applicator according to claim 1 and characterized further in that said microneedles project from said base a distance sufficient to penetrate the stratum corneum.

Claim 20. (Original) An applicator according to claim 19 and characterized further in that said microneedles project approximately 0.5 to 500 $\mu\text{m}$  from said base.

Claim 21. (Original) An applicator according to claim 20 and characterized further in that said microneedles are generally cone shaped with the diameter at said base being approximately 0.1 to 100 $\mu\text{m}$ .

Claim 22. (Original) An applicator according to claim 20 and characterized further in that said microneedles are square in cross-section with the sides being approximately 0.1 to 100 $\mu\text{m}$  at said base.

Claim 23. (Original) An applicator according to claim 20 and characterized further in that said microneedles are polygonal in cross-section with the sides being approximately 0.1 to 100 $\mu\text{m}$  at said base.

Claim 24. (Original) An applicator according to claim 20 and characterized further in that said microneedles are at least partially elliptical in cross-section with a shortest diameter of 0.1 to 100 $\mu\text{m}$  at said base.

Claim 25. (Original) An applicator according to claim 1 and characterized further in that said microneedles project from said base a distance sufficient to penetrate the dermis.

Claim 26. (Original) An applicator according to claim 25 and characterized further in that said microneedles project approximately 500 to 5,000 $\mu\text{m}$  from said base.

Claim 27. (Original) An applicator according to claim 26 and characterized further in that said microneedles are generally cone shaped with the diameter at said base being approximately 0.1 to 1,000 $\mu\text{m}$ .

Claim 28. (Original) An applicator according to claim 26 and characterized further in that said microneedles are square in cross-section with the sides being approximately 0.1 to 1,000 $\mu\text{m}$  at said base.

Claim 29. (Original) An applicator according to claim 26 and characterized further in that said microneedles are polygonal in cross-section with the sides being approximately 0.1 to 1,000 $\mu\text{m}$ .

Claim 30. (Original) An applicator according to claim 25 and characterized further in that said microneedles are at least partially elliptical in cross-section with a shortest diameter of 0.1 to 1,000 $\mu\text{m}$  at said base.

Claim 31. (New) An applicator according to claim 1 and characterized further in that said material is substantially maltose.

Claim 32: (New) An applicator according to claim 1 and characterized further in that said microneedles have relatively thick inner portions and relatively thick outer portions

with constricted intermediate portions therebetween to facilitate separation of said outer portions from said inner portions with the outer portions remaining in the skin.

Claim 33. (New) An applicator for applying functional substances into human skin, comprising:

- (a) a base,
- (b) a plurality of microneedles fixed to said base and projecting therefrom a distance sufficient to penetrate into the skin, said microneedles being made of a material that is capable of disintegration and dispersion into the skin,
- (c) a functional substance carried by said microneedles for delivery by said microneedles into the skin, and
- (d) said microneedles having relatively thick inner portions and relatively thick outer portions with constricted intermediate portions therebetween to facilitate separation of said outer portions from said inner portions with the outer portions remaining in the skin.

Claim 34. (New) An applicator for applying functional substances into human skin, comprising:

- (a) a base,
- (b) a plurality of microneedles fixed to said base and projecting therefrom a distance sufficient to penetrate into the skin, said microneedles being made of a material that is capable of disintegration and dispersion into the skin, and
- (c) microcontainers containing said functional substance, said microcontainers being contained within said microneedles for delivery into the skin.

Claim 35. (New) An applicator according to claim 34 and characterized further in that said microneedles are formed with barbed tips and said microcontainers are disposed in said barbed tips for separation with the barbed tips from the remainder of the microneedles for retention in the skin upon removal of the base.